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PROGRAMME BUDGET FOR THE BIENNIUM 1992-1993

New technology projects

Progress report on the optical disk project

Report of the Secretary-General

Addendum

INTRODUCTION

1. At its forty-sixth session, the General Assembly considered the report of the Secretary-General on the optical disk system for the storage and retrieval of parliamentary documents (A/C.5/46/26) and the related report of the Advisory Committee on Administrative and Budgetary Questions (A/46/7/Add.12) and, in paragraph 3 of part V of its resolution 46/185 B, approved phase II of the optical disk storage and retrieval project for the period 1992-1993, subject to the submission of a detailed performance report on the completion of phase I in 1992. The present report is submitted in compliance with that resolution.

I. IMPLEMENTATION OF PHASE I

A. Installation of equipment and software

2. The implementation of phase I of the project has proceeded along the lines described in paragraphs 7 to 11 of the report of the Secretary-General to the General Assembly at its forty-sixth session (A/C.5/46/26). Following approval by the Assembly, implementation began with the acquisition of standard and off-the-shelf equipment and software for Geneva and New York,

including the retrieval workstations and networking components. Installation was completed at both sites in January, and installation of customized application software was completed in June; systems training was also provided to selected staff at Headquarters and Geneva. The total expenditures in 1990-1991 under the contract covering the acquisition and installation of equipment and software as well as related staff training were US$ 924,100; additional expenses of $68,500 were incurred for related consultancy and other services, bringing the total to $992,600.

3. A three month period of operational testing leading to final acceptance began on 1 August at both sites. Inter-divisional project teams have been formed at Geneva and New York to ensure that all divisions participate actively during the installation and testing of the system to review and modify work flows, functions and procedures in order to obtain the expected benefits from the system.

B. Characteristics of the system

4. Identical document servers, using the UNIX operating system, and optical disk subsystems are installed at each location. The optical disk subsystems comprise two optical disk drives each with a capacity for one 9-GB optical disk (4.5 GB per side). Each 9-GB disk has the capacity to store the equivalent of 128,500 standard pages of text in scanned image form, or about 2.7 million pages of standard text in coded form. One input workstation has been installed at Geneva and one at United Nations Headquarters, New York; a second input workstation is being ordered for New York in view of the large number of documents to be scanned and stored in image form. There is at present the capacity to serve 50 internal and 50 external users; 11 retrieval workstations are now connected to the system at Headquarters and 15 retrieval workstations are connected to the system at the United Nations Office at Geneva. There are no external users connected to the system in New York; at Geneva, 1 mission has already been connected to the system and about 30 more are due to be connected in October. Telecommunications links between the systems at New York and Geneva have been established and tested. Documents are exchanged electronically between the two systems daily, so that documents issued in either location will be available on the database in both locations.

C. Integration with other systems in the Office of Conference Services

5. The optical disk system conforms to the new strategy for technological innovations in the Secretariat, which is based on open systems architecture and uses international standards for storing, retrieving and transmitting text and image documents. Documents are indexed initially on the basis of document symbol, language, document title, date, name of intergovernmental body, agenda item and subject terms, and this initial index is later verified using the United Nations Bibliographic Information System (UNBIS); once UNBIS itself is established on the same computer platform as the optical disk system, as part

of the establishment of a computer-based library information management system, UNBIS will be fully integrated with the optical disk system. This will permit users to access both UNBIS and the optical disk system as though they were part of the same computer system and thus easily consult either the full UNBIS index or the simplified initial index. In order to avoid the storage of the same or similar data on documents and publications in several places, the optical disk system will also be fully integrated with other document tracking and indexing systems now used in the Office of Conference Services. Daily transfer of data to the optical disk system from the Document Recording, Information and Tracking System (DRITS) and the Library's UNBIS indexing system has already been implemented at Headquarters. At Geneva, DRITS will be implemented and integrated with the optical disk system in the first half of 1993.

D. Initial operation of the system

6. At United Nations Headquarters, the Journal, the daily list of documents and all Security Council documents in all six official languages are now loaded into the system every day. At the United Nations Office at Geneva, all documents in Chinese and, for the time being, in Russian and Arabic produced at Geneva since 1 July 1990 have been inputted in scanned form. Documents in English, French and Spanish issued since that date are now being entered from the start in coded form.

7. The system is being managed through facilities management contracts in New York and Geneva. Maintenance is being provided through a 10-year commitment that has been negotiated with the contractor to maintain and upgrade equipment and software for the system as a whole.

E. Access to the system for Secretariat staff

8. At Headquarters it was found during phase I that users within the Secretariat can easily be connected to the system through the digital telephone system. This has made it possible to connect 11 retrieval workstations to the system at Headquarters, even though the rewiring at Headquarters has not been completed. This is only an interim solution, however. As the number of users within the Secretariat grows significantly, the new local area network (LAN) wiring and data transmission network now being installed in the Secretariat will offer a much faster transmission rate to service a greater number of users. At Geneva, internal users are at present connected to the optical disk server through the existing Wangnet network. The new wiring and data transmission network, which is due to come into operation at the end of 1992, will make it possible to connect any office in the Palais des Nations to the optical disk system.

F. Access to the system for Member States

9. Permanent missions of Member States at Geneva or New York will be linked to the optical disk system through integrated services digital networks (ISDN) lines. The number of users will depend upon the capacity of the server; more will be linked as the capacity of the server is increased. At Geneva, some 30 missions are about to be connected to the optical disk system through the Swiss ISDN (Swissnet). Owing to the fact that the Swiss PTT has delayed putting into operation their improved ISDN system (Swissnet 2) to October 1992 and have exhausted all available Swissnet 1 links, only one mission had been connected by the end of September 1992. In New York, there are no links between the system at Headquarters and permanent missions at present. However, ISDN service is now available and ISDN links for a trial set-up to connect missions in New York are on order. Tests will be conducted during the fourth quarter of 1992. It is expected that missions in New York will be able to be connected from the first quarter of 1993 onwards. In subsequent phases of project activities, it may be possible to provide direct access to the optical-disk database to designated offices in the capitals of Member States.

10. As a follow-up to the earlier questionnaire and to the discussions during the forty-sixth session of the General Assembly, a special briefing for the missions of Member States in New York was held in April to describe the status of the project and to provide, through an exchange of information, detailed specifications on equipment, software and communication links for missions and the Secretariat to work towards the planned access to the system for missions in New York during phase II of the project. A number of similar briefings have been held at Geneva and several more are planned. As reported last year (A/C.5/26, para. 22), users will be able to retrieve documents from the optical-disk system using standard IBM-compatible personal computer workstations. The minimum configuration for such a workstation would be a personal computer with a 386 SX processor, a VGA monitor, a laser printer, an ISDN interface for telecommunications and appropriate software (DOS, Windows, WordPerfect or other text-processing software and the optical disk retrieval workstation software). In New York, the total cost for all the equipment and software of such a retrieval workstation is approximately $5,000. The special software for the optical disk retrieval workstation will be supplied to missions free of charge under a global licence agreement between the United Nations and the contractor. The full costs of a higher-performance configuration with increased retrieval and printing speeds would be about $10,000. Such a workstation consists of an IBM-compatible personal computer with a 386 processor, a full-page high-resolution monitor, a laser printer, a special graphics printer interface, an ISDN interface for telecommunications and software as listed above.

II. PROPOSED ACTIVITIES FOR PHASE II

11. During the remainder of the 1992-1993 biennium, following the successful completion of the operational tests of the system, it is proposed that the available resources be concentrated upon upgrading the capacity of the system, increasing the number of documents stored on optical disk and, to the extent permitted by the available resources, increasing the number of users with access to the system at Geneva and New York. It is proposed to use the 1992-1993 budget appropriation of $1,564,500 for phase II of the optical disk project as follows:

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Facilities management (New York and Geneva)	780 000
Maintenance of equipment (both locations)	262 000
Additional optical disk storage devices (both locations)	200 000
Upgrading document and communications servers, including licence fees (both locations)	200 000
Loading of all resolutions and decisions of the main organs of the United Nations	122 500
Total	1 564 500

12. While the total remains unchanged from the amount approved by the General Assembly, the above allocation of resources differs from that proposed in paragraph 17 of the report submitted to the Assembly at its forty-sixth session (A/C.5/46/26) in several respects:

(a) The costs of facilities management and the maintenance of equipment are slightly higher than previously estimated;

(b) The number of additional users for which provisions are to be made at New York and Geneva has been reduced to 30 and 70 respectively, rather than 90 and 70;

(c) The provision for upgrading existing workstations for users in the Office of Conference Services has been deleted since the standard workstation now being acquired as part of the regular replacement programme established by the Electronics Services Division meets the requirements of an optical disk workstation;

(d) A new provision is made for the storage on optical disk of all resolutions and decisions of the main organs of the United Nations.

13. Since the value of the system to users depends upon the nature and extent of documents stored on the optical disk database, during the remainder of the 1992-1993 biennium, it is proposed that priority be given to establishing the database. For this reason, it is proposed to redeploy funds no longer required for upgrading equipment to cover the estimated costs of contractual services to scan and index all resolutions and decisions of the main organs of the United Nations (Security Council, General Assembly, Economic and Social Council and Trusteeship Council) from 1946 to the present. This will facilitate access to the texts of such resolutions and significantly reduce the need to maintain stocks of the printed texts in all official languages. This is a concentrated, labour-intensive task that can be most effectively and efficiently done through subcontracting, thus leaving the Secretariat staff and scanning equipment available to continue the inputting of 1992 parliamentary documents.

III. PHASE III, 1994-1995

14. Much of the increase in the number of retrieval workstations with access to the optical disk system originally planned for the 1992-1993 biennium has been deferred because of reductions in budget allocations, increased costs of facilities management and maintenance services and the need to devote resources to the storage of documents in the database so that users will have from the beginning a fairly comprehensive database at their disposal. During the 1994-1995 and subsequent bienniums, a greater proportion of the available resources will be devoted to extending access to the system within the Secretariat to translators, revisers, editors, reference and terminology and library staff in New York and Geneva as well as to selected staff in the Department of Public Information and in substantive departments and offices. Depending upon the communications facilities available, access may also be provided to language staff and substantive officers at other United Nations duty stations and to United Nations information centres. Access to the system will also be provided to the missions of Member States in New York and Geneva.

15. As regards the requirements foreseen for the project in 1994-1995 and reflected in paragraph 20 of document A/C.5/46/26, since the equipment now being provided to each staff member whose work requires some type of computing power can perform the functions of a retrieval workstation with the addition of optical disk retrieval software, the requirement of $1 million for upgrading workstations in the Office of Conference Services will no longer be necessary. Accordingly, the allocation of resources needed to expand the system to accommodate 1,600 additional users would therefore be reduced from $6 million to about $5.1 million. In other respects, the projected amount needed to establish a system with the capacity to accommodate 1,900 users by the end of 1994-1995 remains valid. The provisions for additional document servers and communication servers to accommodate additional users include the licence fees for the additional local and remote retrieval workstations. The licence fees for offices of the United Nations (local) and for accredited missions to the United Nations (remote) are cumulative, one-time fees, reaching a maximum of $1,066,500 with more than 800 local and 500 remote

users. The contract for phase I included payment of licence fees of $197,500 for 50 local and 50 remote users. For an addition of 100 remote users in 1993, the licence fees would be $118,500; for the total of 1,600 local and remote workstations planned for 1994-1995, the additional licence fees would be $750,500. With more than 1,000 users, the average site licence cost per workstation will be somewhat less than the $1,000 per workstation mentioned in paragraph 22 of document A/C.5/46/26 and included in the estimated costs of additional document servers and communication servers shown in paragraph 20 (c).

16. If everything goes according to schedule and there is an expansion of the capacity of the system in 1994-1995 as described in paragraph 19 of document A/C.5/46/26, with the storage of about 1 million pages of documents annually and access to the system of a total of 1,900 users, with simultaneous servicing of one third of all authorized users at any given time, the total requirements for 1994-1995 are projected at about $5.1 million at 1991 rates, allocated as follows:

Purpose of expenditure	Estimated amount $	Compared with A/C.5/46/26
Facilities management	780 000	$40,000 increase
Maintenance of equipment	500 000	Unchanged
Acquisition of equipment		
Jukeboxes	132 000	Unchanged
High-speed document printing system	400 000	Unchanged
Additional document servers and communications servers (including licence fee) to accommodate additional users	3 320 000	Unchanged
Upgrading workstations	0	Reduced by $1,000,000
Total	5 132 000	Reduced by $960,000

17. Since the system is modular in design, phasing of project implementation can be adjusted in accordance with the availability of resources and in the light of overall priorities. In general, costs can be reduced by reducing the number of users. The capacity of document servers and communication servers increases with the addition of units, each capable of accommodating a specified number of users. Since the various components of the system accommodate different numbers of users, it is difficult to state precisely the costs of increasing the capacity of the system to accommodate one or more additional users. A rough estimate is that, for the system as a whole, the average cost would be about $2,000 per user (including licence fees).

IV. BENEFITS OF THE SYSTEM

18. The full gains in efficiency and effectiveness and the reduction in costs described in previous reports to the General Assembly (see in particular A/C.5/45/58, sect. IV, and A/C.5/46/26, sect. V), can be realized only when a complete collection of parliamentary documentation issued over a period of several years has been stored on optical disk and many internal and external users have been equipped with retrieval workstations with access to the database.

19. Nevertheless, estimates may be made of some gains in efficiency and economy likely to be produced over time:

(a) Once a complete file of resolutions and decisions of the main organs of the United Nations has been established on optical disk, storage space requirements in the main documents storage and secondary distribution area can be reduced, since it will be possible to reduce the stocks of books of resolutions and other documents now stored for secondary distribution (about 9,000 square feet, or 60 per cent of total space); at Geneva, steps have already been taken to eliminate most such stocks by resorting to printing on demand, based on the use of devices capable of retrieving digitized data directly from the optical disks and printing them at high speed in multiple copies;

(b) Print runs for parliamentary documents will be reduced, because of reduced requirements for initial and secondary distribution, resulting in savings in paper and other materials. At Geneva, it is estimated that it will be possible to reduce print runs by some 10 per cent on the basis of stock reduction alone;

(c) Storage requirements at other locations where secondary storage is used will be reduced, since it will no longer be necessary to keep printed copies of documents stored on optical disk, and staff required to maintain such stock can be redeployed to other functions;

(d) Text-processing pools will no longer need to prepare diskettes for author departments and other users of documents, if those users can retrieve documents directly from the optical disk system;

(e) All current documents could be retrieved through electronic means directly as needed during the various stages of the document production process, i.e. drafting, reference, editing and translation;

(f) Archiving of documents in the text-processing pools will be simplified and no additional storage devices will need to be purchased;

(g) Missions will no longer need to keep reference units for United Nations documents, with the attendant costs in staff and premises.

V. CONCLUSION AND RECOMMENDATIONS

20. In view of the excellent results achieved in phase I, it is recommended that phase II of the establishment of the optical disk system proceed as proposed in paragraph 11 of the present report and that subsequent expansion of the system after 1993 be carried out to the extent permitted by available resources and in accordance with the provisions of approved programme budgets.